

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

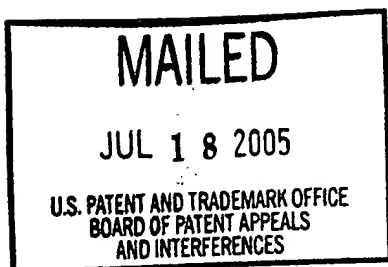
---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* SWARN S. KALSI

---



Appeal No. 2005-0802  
Application No. 09/371,692

---

HEARD: APRIL 20, 2005

---

Before PAK, WALTZ, and TIMM, *Administrative Patent Judges*.  
TIMM, *Administrative Patent Judge*.

***DECISION ON APPEAL***

This appeal involves claims 1-22 which are all the claims pending in the application. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.

### *INTRODUCTION*

The claims are directed to a superconducting electric motor and a method of operating it.

Claim 1 is illustrative:

1. A superconducting electric motor comprising:  
a rotor assembly including:  
at least one superconducting winding which, in operation, generates a flux path  
within the rotor assembly; and  
a support member which supports the at least one superconducting winding, the rotor  
assembly configured to operate  
in a synchronous mode of operation at temperatures wherein the  
superconducting winding exhibits superconducting characteristics and  
in a steady-state induction mode of operation at temperatures wherein the  
superconducting winding exhibits non-superconducting characteristics.

The claims are rejected under 35 U.S.C. § 103(a). As evidence of obviousness, the

Examiner relies upon the following prior art references:

Renard et al. (Renard)	3,904,901	Sep. 9, 1975
Rabinowitz (Rabinowitz '291)	4,176,291	Nov. 27, 1979
Higashi	4,885,494	Dec. 5, 1989
Rabinowitz et al. (Rabinowitz '002)	5,325,002	June 28, 1994
Kalsi et al. (Kalsi)	5,602,430	Feb. 11, 1997

The specific rejections are as follows:

1. Claims 1-4, 9, 12-14, 16, 21, and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rabinowitz '002 in view of Higashi.

2. Claims 5-8, 10, and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rabinowitz '002 in view of Higashi and further in view of Rabinowitz '291.
3. Claims 17-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rabinowitz '002 in view of Higashi and further in view of Renard.
4. Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Rabinowitz '002 in view of Higashi, further in view of Rabinowitz '291 and still further in view of Kalsi.
5. Claim 20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Rabinowitz '002 in view of Higashi, further in view of Renard and still further in view of Kalsi.

The Examiner held that the appealed claims stand or fall together because the Brief does not (1) include a statement that claims do not stand or fall together and (2) reasons in support thereof (Answer, p. 2). Under the rule in force at the time the Brief was filed, both requirements had to be met to assure separate review. *See* 37 CFR § 1.192(c)(7)(2002);<sup>1</sup> *In re McDaniel*, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002). Since Appellant has not petitioned this holding of the Examiner, we will adopt the grouping of the Examiner. *See Ex Parte Ohsumi*, 21 USPQ2d 1020, 1023 (Bd. Pat. App. & Int. 1991). All the claims will stand or fall with claim 1.

---

<sup>1</sup>Note that effective September 13, 2004, 37 CFR § 1.192 has been replaced by 37 CFR § 41.37(c)(69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sept. 7, 2004)).

Because the evidence supports a *prima facie* case of obviousness, we affirm. We, however, denominate our affirmance as involving a new ground of rejection in view of the fact that our reasoning differs somewhat from that of the Examiner. 37 CFR § 41.50(b) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)). Our reasons follow.

### ***OPINION***

The main dispute between the Examiner and Appellant in this appeal revolves around the question of whether Rabinowitz '002 describes a superconducting winding in accordance with the requirements of claim 1. While we agree with Appellant that Rabinowitz '002 does not explicitly teach a superconducting winding, we cannot agree that Rabinowitz '002 teaches away from using such a winding. We also conclude, based on the prior art as a whole, that the use of such a winding in the motor of Rabinowitz '002 would have been obvious to one of ordinary skill in the superconducting electric motor art.

What Rabinowitz '002 describes is a superconducting electric motor having a rotor and a stator. The motor contains superconducting material in one of the rotor and the stator and a magnetic field generator, which can take the form of a plurality of windings supplied with current, in the other of the rotor and the stator (Rabinowitz '002, col. 4, ll. 27-35). In the preferred embodiments, the superconducting material is contained in the rotor while the windings are in the stator (Rabinowitz '002, col. 5, ll. 60-63). Rabinowitz '002 makes a point of saying

that the motor “has only a primary set of windings” and exemplifies embodiments with just one set of windings, none of which are described as superconductive. Rather, in the specific embodiments, the superconducting material is present in the form of layers (e.g. layers 12 of Fig.

1). We, therefore, agree with Appellant that there is no express description of using superconducting windings in Rabinowitz ‘002.

Even though Rabinowitz ‘002 does not expressly suggest the use of superconducting windings in the motor, we conclude, based on the evidence as a whole, that the use of superconducting windings in the motor of Rabinowitz ‘002 would have been obvious to one of ordinary skill in the art. Rabinowitz ‘002 includes the following disclosure with respect to the superconducting material:

The superconducting material can be in any of a variety of forms, including particulate, foil, bulk and thin film superconducting materials. Because it is in a non-wire form, instead of one of more windings of wire, the motor/generator can be implemented with substantially any superconducting material, including those that are too brittle to be easily and/or cost effectively formed as superconducting wires.

(Rabinowitz ‘002, col. 5, l. 64 to col. 6, l. 3). This disclosure implies that superconductive windings of wire were known in the art. That fact is supported by Appellant’s own specification (specification, p. 3, ll. 3-9 and p. 9, ll. 6-13 referring to U.S. Patent 5,581,220) and was admitted to during the hearing. It is further supported by Rabinowitz ‘291 which states that rotating superconducting field coils in rotors have been known since 1971 (Rabinowitz ‘291, col. 1, ll. 43-55; see also col. 1, l. 56 to col. 2, l. 45 which further discusses the prior art). As is evidenced

by the portion of Rabinowitz '002 reproduced above, Rabinowitz '002 suggests the use of non-wire superconducting materials in order to expand the selection of superconducting materials. When one of ordinary skill in the art was selecting a less brittle superconducting material, one would have found it obvious to provide it as a winding as claimed as such was a well known configuration.

Appellant argues that Rabinowitz '002 teaches away from a motor that includes a superconducting winding. We do not agree. In order to "teach away" to the extent that one of ordinary skill in the art would not have made the combination, the teaching must be such that it suggests that "the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). For instance, a reference will teach away if it leaves the impression that the product would not have the property sought by the applicant. *Gurley*, 27 F.3d at 552-53, 31 USPQ2d at 1131-32 (citing *In re Caldwell*, 319 F.2d 254, 256, 138 USPQ 243, 245 (CCPA 1963)). But Rabinowitz '002 suggests, albeit not explicitly, that superconducting windings will generate the required flux path in the rotor. While the disclosure indicates that superconducting windings are somewhat inferior, at least for the more brittle forms of superconducting materials, something does not become patentable simply because it has been described as somewhat inferior. *Id.* Moreover, there is no evidence that those of ordinary skill in the art would view windings as inferior for non-brittle superconducting materials. The evidence supports a finding

that there is no "teaching away" sufficient to dissuade one of ordinary skill in the art from making the combination.

Claim 1 further requires that the rotor assembly be configured to operate in a synchronous mode under certain conditions and in a steady-state induction mode under other conditions. Claim 1 is directed to an apparatus. "[A]pparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb, Inc.*, 909 F.2d 1464, 1468, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Therefore, the patentability of an apparatus claim depends on the claimed structure, not on the use or purpose of that structure, *Catalina Marketing Int'l Inc. v. Coolsavings.com Inc.*, 289 F.3d 801, 809, 62 USPQ2d 1781, 1785 (Fed. Cir. 2002), or the function or result of that structure. *In re Danly*, 263 F.2d 844, 848, 120 USPQ 528, 531 (CCPA 1959); *In re Gardiner*, 171 F.2d 313, 315-16, 80 USPQ 99, 101 (CCPA 1948). If the prior art structure possesses all the claimed characteristics including the capability of performing the claimed function, then there is a *prima facie* case of unpatentability. *In re Ludtke*, 441 F.2d 660, 663-64, 169 USPQ 563, 566-67 (CCPA 1971).

It is reasonable to conclude that the motor of Rabinowitz '002 is capable of operating as claimed. There is no question that the motor of Rabinowitz '002 can operate in synchronous mode as claimed (Rabinowitz '002, col. 4, ll. 14-19). Rabinowitz '002 also operates the motor in the induction mode during start up (Rabinowitz '002, col. 4, ll. 41-45). Just as Appellant, Rabinowitz '002 uses a shield member (torque-shield 14) to carry current and act as an induction structure (Compare specification, p. 4, ll. 10-32 with Rabinowitz '002, col. 4, ll. 38-45). Given

the similarity in operation discussed in the reference and the presence of a structure which Appellant's specification indicates will allow operation in steady-state induction mode, it is reasonable to shift the burden to Appellant to prove that the motor of Rabinowitz '002 is, indeed, of a necessarily different and unobvious structure than that claimed. While Appellant provided technical reasoning at the hearing in support of a patentable difference, there is insufficient evidence of record to support that reasoning. Nor has the Examiner had the opportunity to respond to that reasoning. On the present record, the evidence supports a finding that there is no patentable difference in the induction structure.

Because Rabinowitz '002 appears to disclose structure capable of operating as claimed, it is unnecessary for us to discuss Higashi with respect to the rejection of claim 1. Furthermore, Appellant points out no errors with respect to the additional references used to reject other claims, therefore, there is no need to discuss those.

As a final point, we note that Appellant base no arguments upon objective evidence of non-obviousness such as unexpected results. We conclude that there is a *prima facie* case of obviousness with respect to the subject matter of claims 1-22 which has not been sufficiently rebutted by Appellant.



### ***CONCLUSION***

To summarize, the decision of the Examiner to reject claims 1-22 under 35 U.S.C. § 103(a) is affirmed but is denominated a new ground of rejection.

This decision contains a new ground of rejection pursuant to 37 CFR § 41.50(b) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)). 37 CFR § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 CFR § 41.50(b) also provides that the appellant, *WITHIN TWO MONTHS FROM THE DATE OF THE DECISION*, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

## DENOMINATED A NEW GROUND OF REJECTION

)  
)  
)  
)  
)  
)  
) BOARD OF PATENT  
) APPEALS  
) AND  
) INTERFERENCES  
)  
)  
)  
)  
)  
)

Appeal No. 2005-0802  
Application No. 09/371,692

Page 11

FISH & RICHARDSON  
PC 225 FRANKLIN ST  
BOSTON, MA 02110